# Sanskrit in Computing

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## ABSTRACT

*Large varieties of theories and algorithms have heavily loaded the computer world and its underlying architecture. This aspect has created large interest and diversity of usages of computer. The use varies from animation to zoology and from arithmetic to z-transform. But the consequence is a vague pool of theories and lack of coordination among them. There is a need to unify all the conceptual theories existing in a common bind. This paper is a research conclusion of Sanskrit as a powerful tool analyzes the existing theories in order to present a unified or superior theory without affecting much to the diversity of whole computing field.*

## INTRODUCTION

One of the modern technology boon and age-old language associated with particular culture that hives the legacy and divinism, how could they go on hand-to-hand is the general perception that comes to mind of everybody when somebody glance at the topic "Sanskrit in Computing" but the fact is somewhat different or maybe even amazing. Sanskrit and computer not only correlate but also overshadow the possible explanation. On other hand in spite of having a formal way of studying Sanskrit and finding its implementation in every aspect (even computing) of life we gaze around the maestro theories, which solve the problem, but with cost of larger space and time complexity. This situation could be as a analogy of "Kasturi" who searches the whole forest for the scent without knowing the origin within its own body. The multidimensional aspect of Sanskrit including medicine, economics, astrology, science, mathematics postulates the larger domains of problem that were addressed from extensive researches regarding Sanskrit as a unified language as a tool to be used to pass it from generation to generation. So why not we analyze the existing literatures to dig through and treasure hunt the parts where Sanskrit is used as a computational tools and why not we study the well form of the Sanskrit to develop "The language" and "The grammar" for computing.

This paper is not a specific conclusion or biased solution but our general perception towards the matter. So, we have formalized the general topic of interest within our domain to brief the little from the ocean of knowledge, yet to be surfed and yet to be dived. We have mainly discussed in the basis of four postulates in preceding sections.

## SANSKRIT

Sanskrit is one of the two "krit" another being Prakrit i.e. natural language. The Sanskrit language harvest the enrichment of all aspect of knowledge emerged, ranging from medical, astrology, physics, ethics, politics, literature, economy and countless other field. The universality of Sanskrit is account of its accuracy and preciseness. Sanskrit is a language nearly or purely mathematics. Formula given by Panini (Sutras) and well explained by Katyayani and Patyanjali (Bartik). The simplicity rather then vastness of Sanskrit does make it optimal to be used in many fields, then why shall it not be used in computer or on the other way does there exist a relevancy for Sanskrit to be used in computer? In spring of 1985 NASA researcher, Rick Briggs gave a breakthrough statement regarding Sanskrit as perfect language for Artificial Intelligence.

The Backus-Naur form (BNF) (also known as the Backus-Naur formalism, Backus normal form or Panini-Backus Form) is a metasyntax used to express context-free grammars that is, a formal way to describe formal languages.

BNF is widely used as a notation for the grammars of computer programming languages, command sets and communication protocols, as well as a notation for representing parts of natural language grammars. The backus Naur form has larger similarities to the priliminary grammer for sanskrit devised by Panini

hence sometime also known as Panini-Backus Form. This shows the strong base of sanskrit grammer and language construct. Other aspect of sanskrit language is shown in subsequent headings.

## UNAMBIGUOUS SANSKRIT

Examining the sentence “Cow eats grass”. Sentence contains “Subject + Verb + Predicate”. What if we interchange subject and predicate we get “Grass eats cow”. Even the sentence syntactically is correct, whole semantics is ruined because no grass could ever eat cow till date. Due similar kind of reasons scientist are forced to develop Artificial languages for computer programming instead of natural language like English or Chinese etc. Again such artificial languages suffer from proper semantics rules and are totally based on syntactical construction of codes. So making it cumbersome for Artificial Intelligent Program or language to be constructed. Again examining same sentence but in Sanskrit we get “Gau trinam khadati” structurally “Subject + Predicate + Verb”, here interchanging subject and predicate gives “Trinam Gau khadati” meaning the same before which is “Cow eats grass”. Hence Sanskrit shows the power of unambiguity over other prakrit language like English. Making it suitable for being developed as artificial intelligent and semantic based language.

## OBJECT ORIENTED SANSKRIT

Sanskrit is a constructive language and endless possibility for new words according to context being developed which still will be strictly based on the rules of the language i.e. grammar. Even the language itself is the constructive harmonics of the 14 basic rule postulated by Panini. Whole language with all sets and subset of word is just a large variety of recipe cooked from limited 14 ingredients. This was only possible through boarder classification and grouping, regrouping and shandi , bigraha of those 14 shiva sutra through extensive OO approaches resulting in entire Sanskrit grammer. We talked about the two krit earlier Sanskrit and prakrit both have same suffix “krit” signifying language and creation another word in a category is aakrit meaning pictorial language. All underlined words above are derivative of same class i.e. language. Efficiency accounts for full utilization and proper packaging of words so much could be extracted from each single word. Sanskrit is again among first in this context. The following example explains all. "patithavan" indicates that it is a verb in past tense, third person, male, and singular number, in addition to indicating the root "pat" that means "reading." In other words, the full meaning of "patithavaan" will be: an action "reading" is taking place in the past by a single male third person. Which language can give you more than that? . hence Sanskrit have OOP approach in its word. Many times not only words but even phonemes have an OOP properties associated with word. Hence proper study and initiative could develop an OOP with Sanskrit as base.

## GENERATIVE SANSKRIT

One of the most distinctive features of Sanskrit is its generative ness. As stated earlier the whole Sanskrit language has been clearly defined by great sage Panini with the basis of 14 basic formulas called as Siva Sutras. This fact explains how mathematical the language is. The mathematical expressibility of the language can be well correlated with the Fibonnaci series, which explains every natural dilemma on the basis of addition of existing knowledge base. Nature follows the Fibonacci series because it is so simple and generates the pattern e.g. bee generation theory, Dueney-cow puzzle, flower sepals and petals, cauliflower structures, finger size ratio and nearly every pattern. These all were explained in the Sanskrit language as a regenerative theory of computation. Other interesting thing is that mathematicians cum philosophers Bhaskara and Gopala have rediscovered maximum of the complex mathematical relations on the basis of our great literature.

## DIVINE SANSKRIT

Even though this paragraph exerts no much relation to computing aspect of Sanskrit it may be discriminating Sanskrit if we do not talk about Sanskrit from this dimension. Sanskrit is believed to be bestowed from god to his fellows and considered as the Devvani, which means speech of god. Even the script is called devnagari. But the conflicts arose in its development phase in modern history regarding it as a language of privileged groups like Brahmins and “Rishi Munis” for specific research and recites (in Karma-kandas). The legislation was controlled through extensive close camp trainings to certain kings to rule the earth, which was believed to be conducted by few famous Rishis believed to have direct relation with god. The god theory of Sanskrit clearly resides in its every words and alphabets. For example let us take a well-known Sanskrit alphabet “AUM”. The symbol of Om contains of three curves, one semicircle and a dot. The large lower curve symbolizes the waking state; the upper curve denotes deep sleep (or the unconscious) state, and the lower curve (which lies between deep sleep and the waking state) signifies the dream state. These three states of an individual’s consciousness, and therefore the entire physical phenomenon, are represented by the three curves. The dot signifies the Absolute (fourth or Turiya state of consciousness), which illuminates the other three states. The semicircle symbolizes maya and separates the dot from the other three curves. The semicircle is open on the top, which means that the absolute is infinite and is not affected by maya. Maya only affects the manifested

phenomenon. In this way the form of Om symbolizes the infinite Brahman and the entire Universe and the world. Aum is made out of three god shiva, ganesh and gayatri. The syllable OM also represents the TRIMURTI (triad) of Brahma, Vishnu and Shiva. This is just an explanation of a letter, now one can think what it seems like explaining all Vedas, Upanishads, Manusmriti and lots and lots of manuscript believed to be written in ancient age.

## CONCLUSION

There may be argument that why do we switch back to Sanskrit if we have plenty of development already in other language being used for computing. The first and simple reason is because Sanskrit is simple to learn. Next humankind has fallen far behind the advancements in technology. The precarious state of political and ecological imbalance that we are now experiencing is an obvious sign of the power of technology far exceeding the power of human beings to be in control of it. It could easily be argued that we have fallen far behind the advancements in technology, simply because the languages we use for daily communication do not help us to make the distinctions required to be in balance with the technology that has taken over our lives. Sanskrit and computers are a perfect fit. The precision play of Sanskrit with computer tools will awaken the capacity in human beings to utilize their innate higher mental faculty with a momentum that would inevitably transform the world and keep the control of our technology within us.

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